

What is claimed is:

1. An antenna duplexer comprising:

an input terminal;

a transmission filter including a surface acoustic wave (SAW) filter

5 having an input port connected to said input terminal;

a phase shifter having an input port connected to an output port of said transmission filter;

a reception filter having an input port connected to an output port of said phase shifter;

10 an output terminal connected to the output port of said reception filter; and

an antenna terminal connected between said transmission filter and said phase shifter,

15 wherein said transmission filter has a power durability at said input terminal, the power durability being equal to or larger than a power durability at said antenna terminal.

2. The antenna duplexer of claim 1, wherein said SAW filter has a circuit being identical as seen both from the input port thereof and from  
20 the output port thereof.

3. The antenna duplexer of claim 1,

wherein said SAW filter includes:

a substrate;

25 a SAW resonator disposed on said substrate; and

a conductor pattern disposed on said the substrate, said conductor pattern being connected to said SAW resonator, and

wherein a layout of said SAW resonator and conductor pattern is symmetrical.

4. An antenna duplexer of claim 1,

5 wherein said transmission filter includes a first SAW filter having a first series arm SAW resonator disposed at an outermost arm towards said antenna terminal, and

wherein said first series arm SAW resonator includes a plurality of second series arm SAW resonators connected in series with each other.

10 5. The antenna duplexer of claim 4,

wherein the first SAW filter further includes a third series arm SAW resonator, and

15 wherein a series arm SAW resonator having a smallest capacitance of said second series arm SAW resonators has a capacity equal to or larger than a capacitance of said third series arm SAW resonator.

6. The antenna duplexer of claim 4,

20 wherein said first SAW filter further includes a first parallel arm SAW resonator, and

wherein said first parallel arm SAW resonator includes a plurality of second parallel arm SAW resonators connected in series with each other.

25 7. The antenna duplexer of claim 6,

wherein said first SAW filter further includes a third parallel arm SAW resonator, and

wherein said first parallel arm SAW resonator is connected closer to said antenna terminal than said third parallel arm SAW resonator.

8. The antenna duplexer of claim 6, wherein a SAW resonator  
5 having a smallest capacitance of said second parallel arm SAW resonators has a larger capacitance than said third parallel arm SAW resonator.

9. The antenna duplexer of claim 4, wherein said reception filter  
10 includes a second SAW filter including a fourth series arm SAW resonator disposed at an outermost arm towards said input terminal.

10. The antenna duplexer of claim 9, wherein said fourth series  
arm SAW resonator includes a plurality of fifth series arm SAW resonators  
connected in series with each other.

11. The antenna duplexer of claim 10,  
15 wherein said second SAW filter further includes a sixth series arm SAW resonator, and

wherein a SAW resonator having a smallest capacitance of said fifth  
20 series arm SAW resonators has a larger capacitance than said sixth series arm SAW resonator.

12. The antenna duplexer of claim 9, wherein said second SAW  
filter further includes a fourth parallel arm SAW resonator including a  
25 plurality of fifth parallel arm SAW resonators connected in series with each other.

13. The antenna duplexer of claim 12,

wherein said second SAW filter further includes a sixth parallel arm SAW resonator, and

wherein said fourth parallel arm SAW resonator is disposed closer  
5 to said antenna terminal than said sixth parallel arm SAW resonator.